

BowTie Server

enterprise barrier management

BowTieServer solves some of the harder problems in risk management, such as the useful aggregation of risk data, tracking barrier performance over time and getting safety critical information off the shelf and into the organization.

BowTieServer also aims to bridge the gap between management and workforce. All data is built on the bowtie risk assessment model, which provides visual, barrier-based insight into your risks. This allows BowTieServer to create a high quality overview for management and contextual guidance for the workforce .

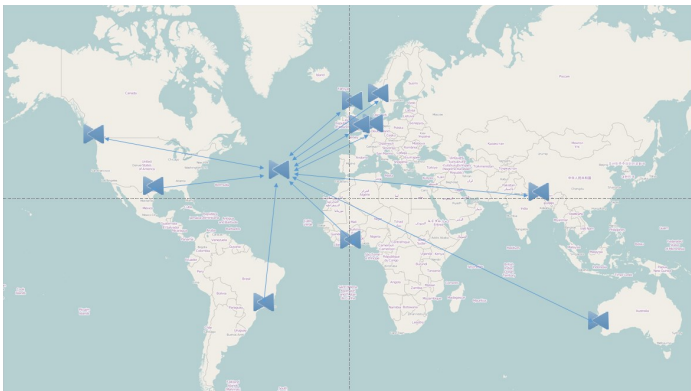
BowTieServer complements the rich and well-established functionality of the existing desktop products BowTieXP, IncidentXP and AuditXP. It's also the foundation for an innovative approach to barrier management with a modern take on existing methodologies (e.g. HAZID) and an exploration of new concepts.

Centralize risk information

BowTieServer centralizes all the bowtie, incident and audit information within an organization in a single database. BowTieServer maintains consistent company standards, leading to a coherent approach to risk management across the organization. This facilitates risk communication and the comparison of risk.

Monitor barrier performance

BowTieServer monitors barrier performance over time, allowing you to track barrier degradation and emergent risk trends. BowTieServer moves from a static picture to a live framework with an up-to-date overview on the health of your barriers. This is done through an integrated approach with audits, incidents and other data sources to gain meaningful insights from this risk critical information.



Contextual risk awareness at all levels

BowTieServer enhances barrier based risk management on all levels of your organization. Managers and the workforce have different information needs, which BowTieServer tailors to. It understands who is logged in and adjusts the information accordingly; it only presents the relevant information which the user is authorized to see. Enabling the organization to share risk critical information with the workforce, and providing managers with line of sight to compare sites, assets and locations.

Aggregate risk

Performance overviews are created in BowTieServer, using for instance audit results. This allows us to see if there are general weaknesses in the organization, or bottlenecks at specific locations or individual barriers. Having a central repository with the shared barrier language makes it much easier to aggregate risk across different locations. BowTieServer provides a company-wide overview of all the risks and quick drill downs into specific problem areas. The goal of the risk aggregation is to fix any deficiencies with targeted recommendations.

Modules

Personal landing page

The personal landing page only shows the information that is relevant to the user such as audit surveys, incident reports, relevant barriers & activities. Easily go to an audit survey online.

Bowtie Viewer

View bowtie diagrams and associated information. No unwanted changes or conflicting versions because the bowties in the viewer are read-only. The bowties can be viewed online in any modern web browser.

Your Open Surveys

Survey	For Organizational Unit	Due date	Progress
Well testing - All barriers	Leidschendam	02/09/15	
Maintenance manager survey	Leidschendam	02/09/15	
Maintenance manager survey	Europe	02/09/15	
Maintenance manager survey	Rottterdam	02/09/15	
Maintenance manager survey	Leidschendam	02/09/15	

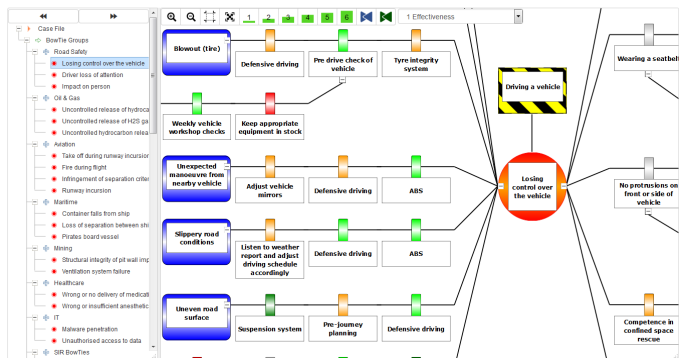
Recently reported open incidents

Incident	Organizational Unit	Report age
Fall from scaffold	Leidschendam	3 months

Top Barriers

- Automatic Deluge System
- Routine function and pressure testing of well control equipment
- Test of ignition system prior to well test
- Tyre integrity system
- Weekly vehicle workshop checks

BowTies



Dashboards & reports

Filter the data in the reports to your own needs and quickly drill down to the information you want to see. Have an up-to-date perspective on your risk critical information.

Wiki information management

Integrate documentation into risk management. Store safety cases or procedures, or link specific sections to bowties, audits and activities.

Hazards

BowTie Group	Hazard code	Hazard name	Top event	Inherent	Residual
				Pe As En Re	Pe As En Re
Road Safety	RS-H 01	Driving a vehicle	Losing control over the vehicle	04 02 04 01	04 02 06 01
Road Safety	RS-H 02	Driving a vehicle	Driver loss of attention	04 02 04 03	04 02 06 02
Road Safety	RS-H 03	Driving a vehicle	Impact on person	04 02 04 03	04 02 06 02
Oil & Gas	OG-H 01	Hydrocarbons during well testing	Uncontrolled release of hydrocarbons at surface from test equipment (incl FRGTs)	05 05 04 03	05 04 04 03
Oil & Gas	OG-H 02	Well control operations	Sour gas in choke and kill lines	05 01 01 02	05 01 06 01
Oil & Gas	OG-H 03	Hydrocarbons in exploration well	Uncontrolled hydrocarbon release	05 01 01 02	05 01 06 01
Aviation	AV-H 01	Aircraft take off	Take off during runway incursion	05 04 02 04	05 04 02 04
Aviation	AV-H 02	Aircraft in motion	Fire during flight	05 05 03 01	05 05 03 01
Aviation	AV-H 03	Helicopter flying close to ground	Infringement of separation criteria (Air-Ground)	05 05 03 01	05 05 03 01
Aviation	AV-H 04	Aircraft in motion on the ground	Runway incursion	05 05 03 01	05 05 03 01
Maritime	MA-H 01	Container on ship	Container falls from ship	03 05 02 04	03 05 02 04
Maritime	MA-H 02	Transport by sea in ice conditions	Loss of separation between ship and ice	03 05 02 04	03 05 02 04
Maritime	MA-H 03	Marine operations in Pirates-risk zone	Pirates board vessel	03 04 01 01	03 04 01 01
Mining	M-H 01	Open Pit Mining Operations	Structural integrity of pit wall impaired	03 04 01 01	03 04 01 01
Mining	M-H 02	Dependence on ventilation in underground mine	Ventilation system failure	03 04 01 01	03 04 01 01
Healthcare	HC-H 01	Delivering medication via infusion pump	Wrong or no delivery of medication	04 02 04 04	04 02 06 01
Healthcare	HC-H 02	Delivering anaesthetics during surgery	Wrong or insufficient anaesthetics given	04 02 04 04	04 02 06 01
IT	IT-H 01	Dependence upon business-critical, networked environments	Malware penetration	04 04 04 04	04 04 04 04
IT	IT-H 02	Confidential data stored in helpline computing environments	Unauthorized access to data	04 04 04 04	04 04 04 04

Anti-lock Braking System



Anti-lock braking system (ABS) is an automobile safety system that allows the wheels on a motor vehicle to maintain tractive contact with the road surface according to driver inputs while braking, preventing the wheels from locking up (ceasing rotation) and avoiding uncontrolled skidding. It is an automated system that uses the principles of:

- threshold braking and
- cadence braking

which were practiced by skillful drivers with previous generation braking systems. It does this at a much faster rate and with better control than a driver could manage.

Hazard Identification (HAZID)

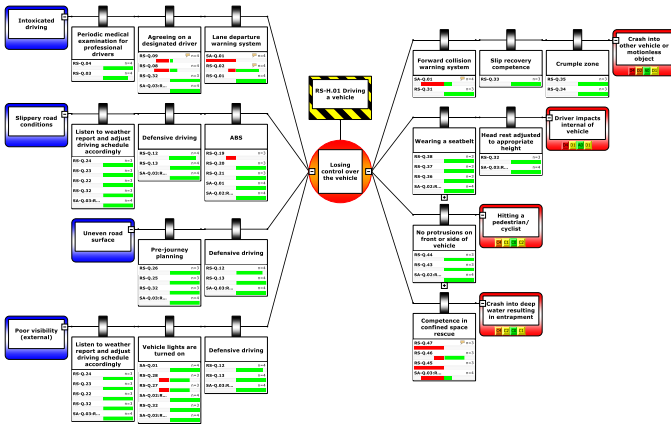
Set up a complete risk register containing hazards specific to your organization. Convert HAZID input to bowtie diagrams to kick start risk analysis.

Work bowties

The Work Bowtie module is designed to support Task Risk Assessment by operations, based on a set of standard bowties per type of job.

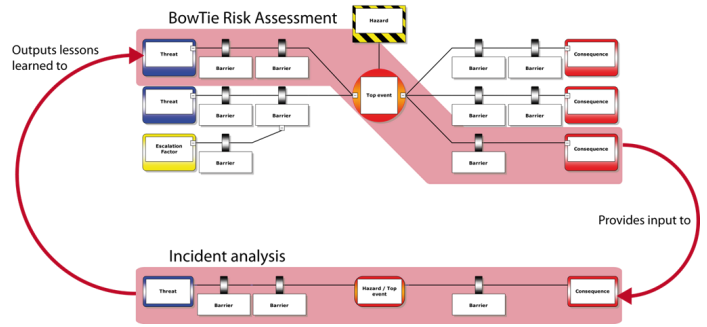
Audit management

Complete audit surveys online via the user-friendly web interface. Audit results are automatically stored in the system allowing you to make targeted improvements with up-to-date information. Audit distribution is easy with scheduled audits and automatic emails.



Incident management

Report and analyze incidents. Scenario-based Incident Registration (SIR) guides users through the incident analysis to question barriers in a structured manner. The questions in the incident registration form and analysis part are customizable. Analyze a report in depth using IncidentXP.



Audit Overview

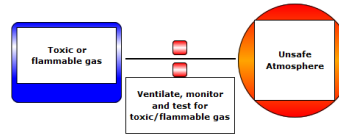
Home > Reports > Audit Overview

Filter & Group		Total	Critical	Not Critical
Country	Site	n = 415	n = 100	n = 213
Europe	Antwerpen	n = 7	n = 3	n = 4
	Amsterdam	n = 11	n = 0	n = 0
	Leidschendam	n = 104	n = 41	n = 54
	Oslo	n = 12	n = 0	n = 0
	Slavanger	n = 12	n = 0	n = 0
South America	Rio de Janeiro	n = 20	n = 10	n = 10

Confined space entry Scenario based Incident Registration

4. Performance details of safety measures

Ventilate, monitor and test for toxic/flamable gas - Barrier 1 of 6



- Yes this safety measure functioned correctly
- No it did not or perhaps partially
- This Barrier is not applicable for this scenario

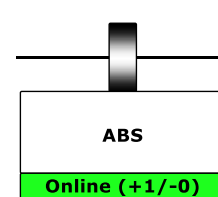
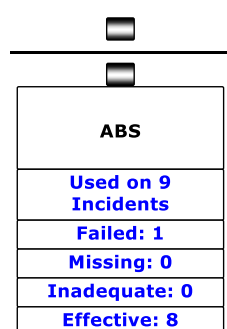
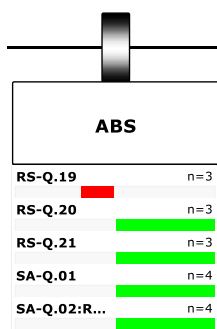
Why did atmosphere management fail?

- Equipment wasn't present
- Equipment wasn't used
- Equipment wasn't working correctly
- Equipment was shut off during operation
- I don't know why

Monitoring Barrier Performance

Get more information about the health of the barriers in your organization with audit, incident & live system status data. Compare barriers to see how they are performing in various locations.

Barrier	Organizational Unit	From	To	Change
ABS	Sao Paulo	Poor	Good	↑
ABS	Buenos Aires	Good	Very Good	↑
ABS	Santiago	Good	Very Good	↑
ABS	Rio de Janeiro	Very Poor	Good	↑ ↑



New features

Action Tracking

In BowTieServer Action Tracking you will be able to manage, subdivide and track all your actions and recommendations. BowTieServer makes it possible to direct actions to specific persons in the organization. The (sub-)action will appear on the user's personal landing page and an email notification is sent to him/her once the (sub-)action is assigned. The Action Tracking will provide clear overviews about the progress of the actions and sub-actions status. This gives the action manager the possibility to intervene timely if something does not go according to plan.

Maintenance Data Integration

BowTieServer can now integrate with Maintenance Management Systems (MMS), for example SAP, to determine the status of equipment and what this means for the level of risk on a site. This MMS information is linked to the bowties to put data that is often hidden in the MMS in a risk context. It draws attention to areas where equipment breakdowns and maintenance jobs combine to create a high risk situation. MMS data is important input because it supports making important decisions about which pieces of equipment can be offline while remaining safe.

How it works

Web-ready

BowTieServer is presented in a web browser to make risk management practices more useful and accessible for workforce and management. Any PC, tablet or mobile device can access it.

Advanced access control



BowTieServer combines access & data permission control to create a transparent line of sight with appropriate information. This enables the organization to control the spread of information, whilst creating risk awareness by providing the precise information the user needs throughout the whole organization. In this way, people can only access the information that they are authorized to see.

On-premise or in the cloud

BowTieServer is built on a SQL database. BowTieServer can be installed on premise (in your network environment) or as a cloud service (a hosted solution).

Integration with 3rd party tools



It is easier to integrate with 3rd party tools since all information is stored together and because BowTieServer has a standardized API. This opens the door to integrations with management tools that already exist within your company. It can be used to populate risk dashboards, competency management software, permit to work systems, incident management portals, action tracking tools and much more.

Getting started

Implementation support

The introduction of BowTieServer in an organization is always part of a program. It must fit in a bigger picture and requires a set of activities to make it work. A scoping session identifies all important elements of implementing BowTieServer by starting with the end deliverables. Once the goals are clear, we work our way back to discuss and plan what needs to be done to achieve the goals that have been set. A team of CGE specialists is available to support partners and clients with the introduction, set-up and implementation of BowTieServer, including training and functional support.

Want to know more?

Would you like to know more about the impact BowTieServer can have on your organization? Please contact us at:

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